

III. REMARKS

1. Claims 40-107 remain in the application. Claims 1-39 have been cancelled. Claims 108-117 have been newly added. Claims 40-107 have been amended.
2. Claim 44 has been amended to correct its dependency.
3. Claim 94 has been rewritten in independent form.
4. The currently pending independent claims of the present application are numbered 40, 52, 58, 65, 76, 83, 94, 97 and 98. This means that the only rejections that apply to independent claims are those made under points 8 and 11 of the Final Office Action dated 4 February 2005. More specifically, according to point 8 of the final Office Action, independent claims 40, 58, 76 and 94 are rejected under 35 U.S.C. 102(e) as being anticipated by Andrew and, according to point 11 of the Official Action, independent claims 52, 65, 83, 97 and 98 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Andrew with Keith. For this reason, the Applicants' response to the present Office Action concentrates on establishing the novelty of newly amended independent claims 40, 58, 76 and 94 with respect to Andrew and the non-obviousness of newly amended independent claims 52, 65, 83, 97 and 98 with respect to the combination of Andrew and Keith. Since all other claim rejections in the present Official Action relate to dependent claims, it is the Applicant's belief that establishing the novelty and inventiveness of the newly amended independent claims should suffice in order to establish the novelty and inventiveness of all the dependent claims as well.

5. Claims 40, 45 - 48, 51, 55, 58, 61 - 64, 76, 79 - 82, 91 and 94 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent no. 6,563,958 ("Andrew").

Independent claims 40, 58, 76, and 94 of the present application as newly amended state that a modified pixel value produced as a result of the filtering process applied to a boundary between a currently decoded image block and a previously decoded image block "is made available for use in INTRA prediction of an image block within the same image as said current decoded image block and said previous decoded image block". This is a feature neither taught nor suggested by Andrew, since Andrew is totally silent on issues relating to the prediction of pixel values, such as INTRA prediction (INTRA prediction is a technique which can be used e.g. in video coding to predict pixel values of an image to be encoded or decoded blocks from other previously encoded / decoded image blocks of the same image).

Andrew presents a method and apparatus for filtering boundaries between blocks of a digital image. The method decompresses blocks of a compressed image and filters the blocks with a one-dimensional filter across boundary regions between adjacent blocks (see abstract). In first embodiment of the invention, described between column 3, line 39 and column 4, line 3, selected blocks of the digital image are decompressed and then, only after all selected blocks have been decompressed, filtering is applied to the boundaries between the decoded blocks (see column 3, line 64 to column 4, line 3, as well as Figure 2).

In an alternative embodiment of Andrew's method, described between column 5, lines 36 and 64, the block boundary filter is applied on a block-by-block basis such that when a particular image block is decompressed, block boundary filtering is applied to those edges of the block that have boundaries with already decoded blocks before any further image blocks are decompressed (see Figure 3).

At least for these reasons Applicants submit that independent claims 40, 58, 76, and 94, and dependent claims 45-48, 51, 55, 61-64, 79-82, and 91 are not anticipated by Andrew.

6. Claims 41 - 44, 50, 59, 60, 77 and 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Andrew with US patent no. 6,496,605 ("Osa").

Claims 41-44, 50, 59, 60, 77, and 78 depend from claims 40, 58, or 76. Osa fails to supply the features missing from Andrew as argued above. Therefore the combination of Andrew and Osa fails to render claims 41-44, 50, 59, 60, 77, and 78 unpatentable.

7. Claims 49, 53, 66 and 95 - 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrew.

Claims 49, 53, 66, 95, and 96 depend from claims 40, 58, 76 or 94. Andrew fails to disclose or suggest all the features of the independent claims for the reasons argued above. At least for these reasons claims 49, 53, 66, 95, and 96 are patentable over Andrew.

8. Claims 52, 54, 65, 67 - 73, 83 - 90, 97 - 99, 102 and 105 are rejected under 35 U.S.C. 103(a) as being unpatentable over

the combination of Andrew with US Patent no. 5,419,513 ("Keith").

It appears that the Examiner's principle motivation for introducing the Keith document was to demonstrate that the grouping of individual image blocks into macroblocks is well known in the art. Regardless, Applicants respectfully submit that claims 52, 65, 83, 97 and 98 in their newly amended form are non-obvious with respect to the combination of Andrew and Keith. Furthermore, it is the Applicants' view that all of the newly amended independent claims are both novel and non-obvious when compared with the combination of Andrew and Keith.

As previously stated, Andrew is completely silent concerning matters relating to the INTRA prediction of pixel values. Similarly, Keith contains no mention of INTRA prediction, but does include a description of a block edge filter (see column 41, lines 37 to column 42, line 28), which is similar to the first embodiment disclosed by Andrew in the sense that block boundary filtering is performed as a post-processing measure, after all image blocks of a particular video image have been decoded (see Keith, Figure 18). Since neither Andrew nor Keith contain any mention of INTRA prediction, Applicants' submit there is no possible combination of Andrew and Keith that would anticipate the present invention as defined by the newly amended claims or render it obvious. Furthermore, given the absence of any teaching relating to INTRA prediction in both Andrew and Keith, it seems there would be no motivation for the skilled person to combine Andrew's block boundary filter with Keith's video coding system in an attempt to arrive at the invention presently claimed invention.

Keith presents a process, apparatus and system for encoding video signals comprising a plurality of video frames using motion estimation. According to Keith, at least one region of each video frame is designated for intra encoding. One or more regions of each video frame are designated for inter encoding. One or more motion vectors are selected for each region designated for inter encoding, wherein at least one motion vector is a non-zero motion vector. The plurality of video frames are encoded in accordance with the designation of regions for intra coding, the designation of regions for inter coding and the selection of motion vectors, wherein the designation of regions for intra encoding and the selection of motion vectors are adapted to ensure error recovery during decoding of the encoded video frames (see abstract). Keith's video coding system includes a block edge filter (described between column 41, line 38 and column 42, line 28). The block edge filter is applied as a post-processing measure i.e. after all blocks of an image have been decoded (column 41, lines 40 to 42 and Figure 18) to improve the visual quality of decoded images during periods of high motion (column 41, lines 42 to 44).

At least for these reasons Applicants submit that claims 52, 54, 65, 67-73, 83-90, 97-99, 102 and 105 are patentable over the combination of Andrew and Keith.

9. Claims 56, 74 and 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Andrew with US Patent no. 6,434,275 ("Fukuda").

Claims 56, 74, and 92 depend from claims 40, 58, or 76. Fukuda fails to provide the features missing from Andrew as

argued above. At least for these reasons claims 56, 74, and 92 are patentable over the combination of Andrew and Fukuda.

10. Claims 57, 75 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Andrew and US Patent no. 6,236,764 ("Zhou").

Claims 57, 75, and 93 depend from claims 40, 58, or 76. Zhou fails to supply the features of these claims missing from Andrew and therefore, the combination of Andrew and Zhou fails to render claims 57, 75, and 93 unpatentable.

11. Claims 100, 103 and 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Andrew, Keith and Fukuda.

Claims 100, 103, and 106 depend from claims 52, 65, or 83. The combination of Keith and Fukuda fails to provide the features of the independent claims missing from Andrew. At least for these reasons claims 100, 103, and 106 are patentable over the combination of Andrew, Keith, and Fukuda.

12. Claims 101, 104 and 107 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Andrew, Keith and Zhou.

Claims 101, 104, and 107 depend from claims 52, 65, or 83. The combination of Keith and Zhou fails to provide the features of claims 52, 65, or 83 missing from Andrew. Therefore claims 101, 104, and 107 are patentable over the combination of Andrew, Keith, and Zhou.

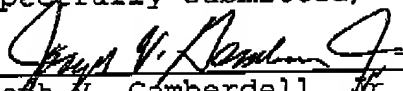
For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are

clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge Deposit Account No. 16-1350 for the amount of \$2,410.00 for an RCE, a three (3) month extension of time, and for additional claim fees.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,


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4 August 2005
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